

# INSTALLATION AND ADJUSTMENT

OF THE

# Home LIFT

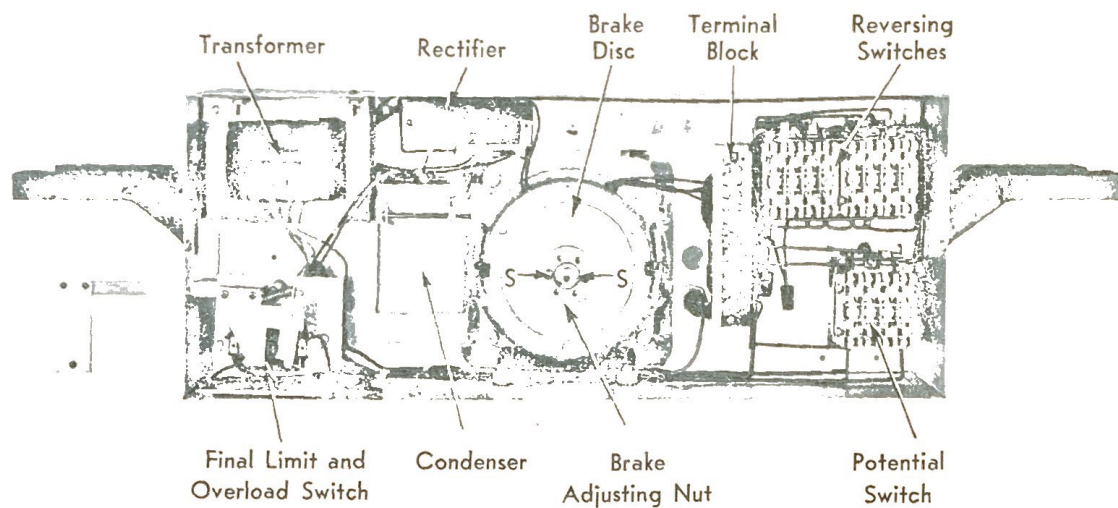


**SHEPARD ELEVATOR COMPANY**

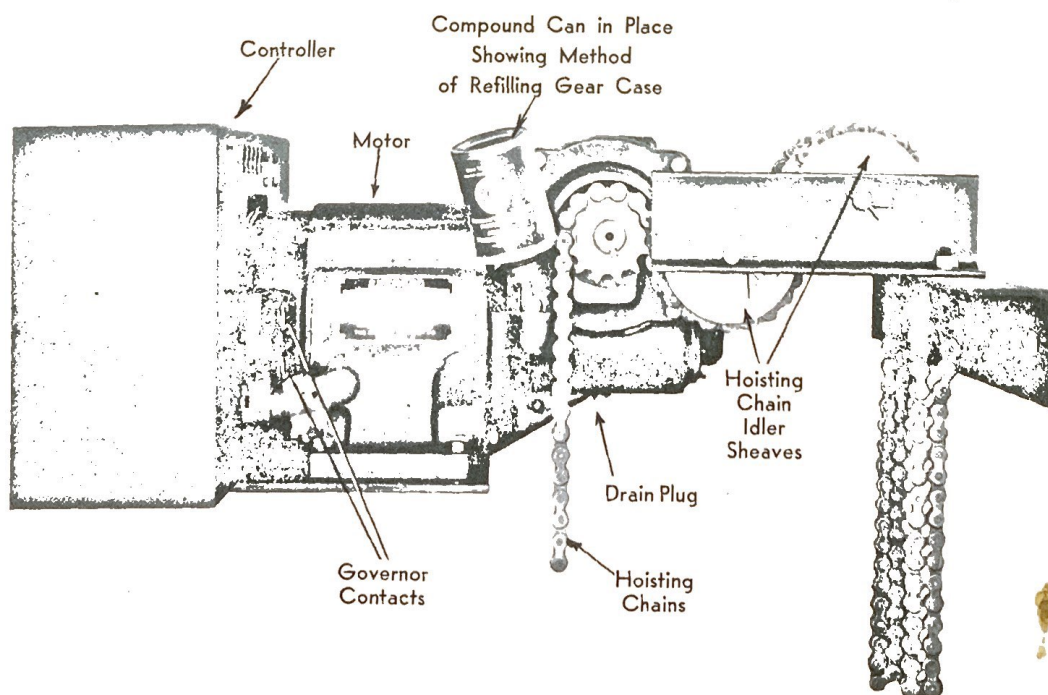
DIVISION OF DOVER CORPORATION

5000 BROTHERTON ROAD

CINCINNATI 9, OHIO



**FIG. 1**  
**HomeLIFT 20 CONTROLLER WITH COVER REMOVED**



**FIG. 2**  
**SIDE VIEW OF HomeLIFT 20 HOISTING MACHINE**

Shepard Elevator Company has reserved the right to make changes in design or to add improvements on HomeLIFTS at any time without incurring any obligation to install them on HomeLIFTS previously purchased.



## INSTALLATION OF THE HomeLIFT

There are two series of HomeLIFTS: the 20, which is direct lift, chain-supported providing a 350 pounds capacity of 20 feet per minute speed; and the 40, which is counterweighted, chain supported providing 500 pounds capacity at 40 feet per minute speed.

Various car sizes are offered with both series. The 40 because of the counterbalance must be enclosed at all floors and requires additional overhead clearance and an 8" pit.

The Type N-400 HomeLIFT 20 and the N-425 HomeLIFT 40 are shipped with car assembled. If the following instructions are read carefully and followed carefully, there should be no difficulty in making a quick and accurate installation.

Remember that all parts are marked according to the numbers and letters on the various diagrams and figures.

Select a plan shown as Figs. 3 or 4 for the HomeLIFT 20 and Fig. 6 for the HomeLIFT 40 that corresponds to the proper size car. The dimensions shown in Fig. 3, 4 and 6 can readily be modified for HomeLIFTS with other car depths. The carpenter should follow the plan to obtain dimensions for cutting the hole in the floor. Where the owner furnishes the top floor hoistway enclosure or an enclosure at other floors, the clearances on the drawings must be maintained.

The elevation drawing shown in Fig. 5 for the 20 or Fig. 7 for the 40 is to be used as a guide for assembling and installing the HomeLIFT. The plan and elevation drawings should be carefully studied before work is started.

### PRELIMINARY

Check the floor opening to see that it is of proper dimensions according to the drawing and that it is located that the guide rails can drop plumb to the lower floor. Also check to see that the opening is perfectly square. If oversize, the opening must be shimmed at the rear for the header bracket "H", Fig. 5 or 7, or furred out at the front, whichever works out better for the conditions.

When removing the HomeLIFT from the crates, note that all parts have been carefully marked. Those that go on the right hand side are marked with the letter "R" and those that go on the left hand side are marked with the letter "L". The parts that go to the front have even numbers, and those that go to the back have odd numbers. Remembering this, and following the markings carefully, you will find all parts to fit perfectly in place.

The interior of the guide rails are thoroughly brushed before shipment, however, grit and dirt may

enter while in transit. To assure best operation of the HomeLIFT, it is wise to inspect the interior of the rails before installation and brush them out if necessary.

The hoisting unit, supporting frame, top door frame, two guide rails, and diagonal braces must be carried to the top floor, as the top floor frame work should be installed complete before putting in the lower floor rails and car.

### TOP FLOOR FRAME

To set up the frame work at the top floor, bolt the overhead frame (R-1, R-2, L-1, L-2) to the two guide rails, (1/2 x 3 bolts) installing the diagonal braces (R-2, R-3, R-4, R-1) and (L-2, L-3, L-4, L-1) on each side, bolting at the rear only for the present. (1/2 x 1-1/4 bolts.)

Fasten the header bracket "H" to the lower ends (R-5 and L-5) of the upper guide rails. (5/16 x 5/8 R. H. screws and lock washers.)

Insert the lower end of the rails with the bracket "H" into the hatch opening and raise the guide rails (with the top frame) to the upright position, supporting the rails on the wood nailing strips attached thereto on short boards or wedges on the floor.

Place the front frame (R-2, R-6, L-2, L-6) at the front edge of the hatch up under the front end of the overhead supporting frame and bolt in place (1/2 x 3 bolts) and bolt the diagonal side braces to the front frame at R-2 and R-4, and L-2 and L-4. (1/2 x 3 bolts.)

BE SURE THE FRONT SILL IS PERFECTLY LEVEL AND SQUARE WITH THE HATCH. Then, by means of the wedges between the floor and the nailing strips on the rear rails, bring the upper frame work PLUMB IN ALL DIRECTIONS. USE A PLUMB BOB AND LINE FOR THIS -- NOT A CARPENTER'S LEVEL. Now draw snug all the bolts in the frame and braces. THIS IS ONE OF THE MOST IMPORTANT PHASES OF THE WORK. TO ASSURE BEST OPERATION, THE TOP FLOOR FRAME AND RAILS MUST BE SET ABSOLUTELY PLUMB.

You now have the second floor frame practically together with the exception of the rear diagonal braces.

Be sure that bracket "H" is in the exact center of the hatch opening and back against the supporting header. The center of this bracket should be approximately 4-1/2" below the top floor level. If the hatch opening front to back is exactly correct, the foot of the front frame (R-6 and L-6) with the cross connecting plate will set exactly on the front hatch line, and the spacing plate serves as a tread for the landing.

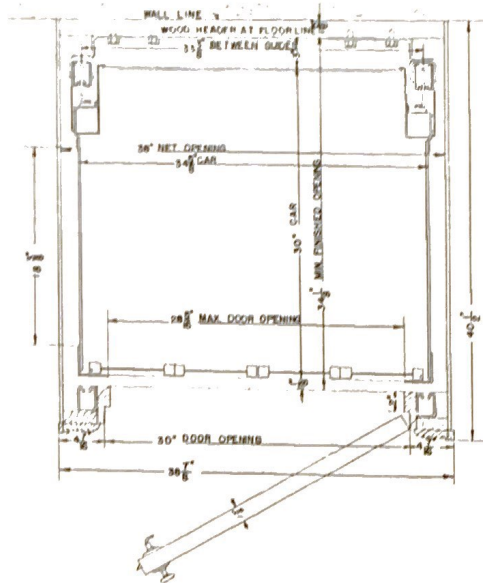


FIG. 3

PLAN FOR MODEL 3430 HomeLIFT 20

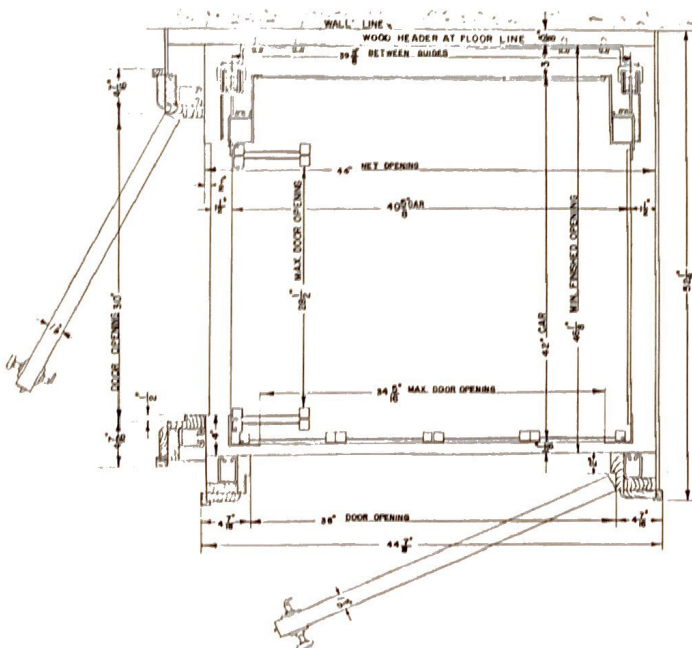
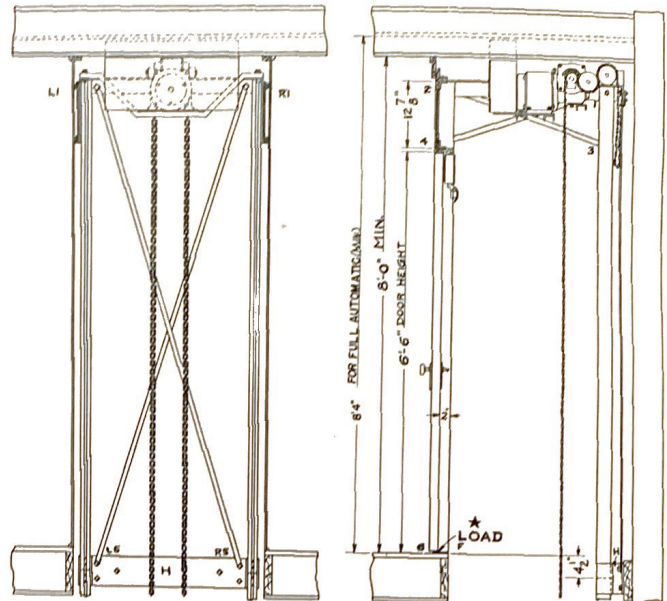


FIG. 4

PLAN FOR MODEL 4042  
HomeLIFT 20

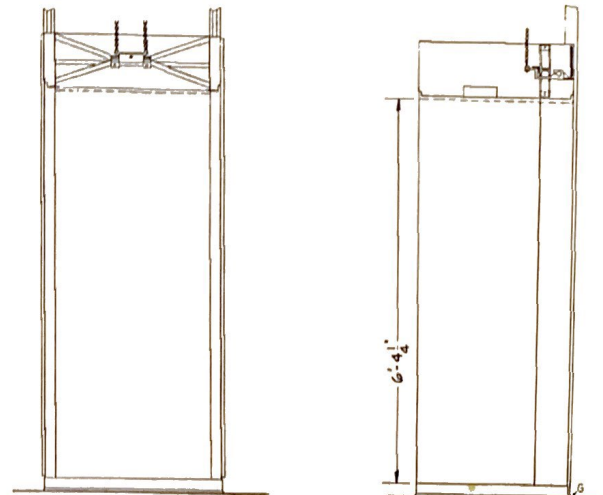


FIG. 5

FRONT AND SIDE ELEVATIONS - HomeLIFT 20



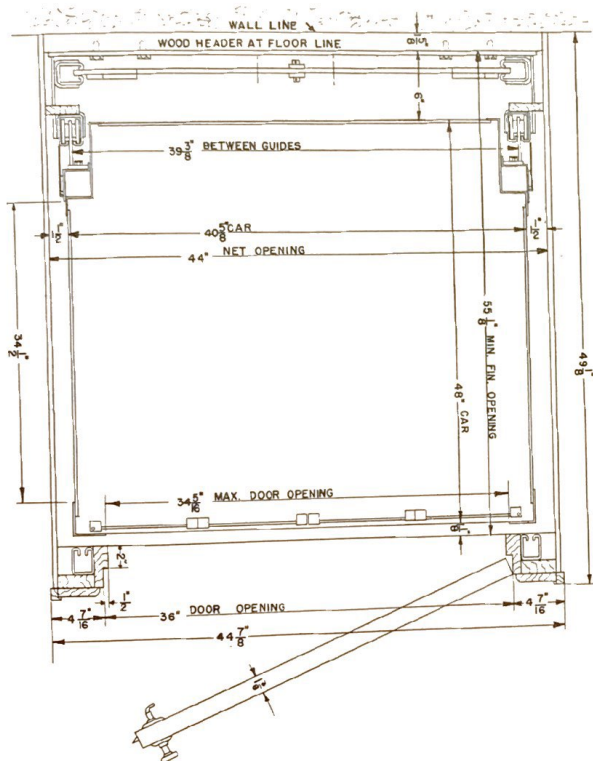


FIG. 6

PLAN FOR MODEL 4048 HomeLIFT 40

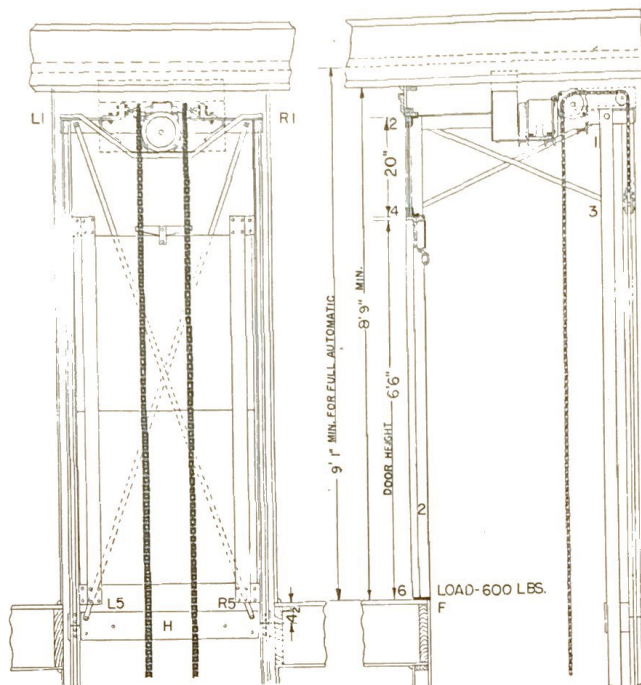
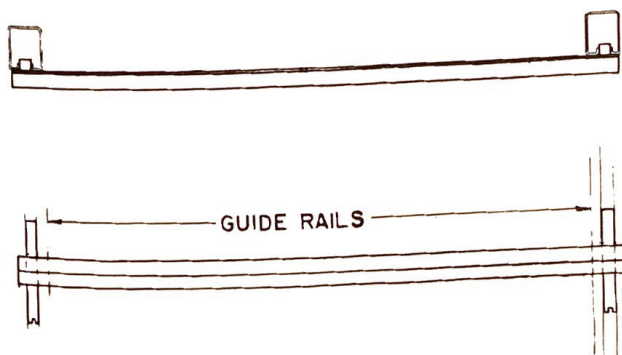


FIG. 7

FRONT AND SIDE ELEVATIONS - HomeLIFT 40

FIG. 8 - USING GAUGE ON GUIDE RAILS

## HomeLIFT

Lag bracket "H" securely to the header (1/2 x 2 lag screws). PARTICULAR CARE MUST BE EXERCISED IN DOING THIS NOT TO THROW THE RAILS OUT OF PLUMB OR CAUSE DISTORTION THAT WOULD PREVENT THE CAR TRAVELING SMOOTHLY ALONG THE GUIDE RAILS. The face of the header must be absolutely flat, because any variation in its surface will distort the back plate of the rail bracket and change the center distance between the rails. Check that the guide rail spacing at the floor bracket is correct by using Gauge Part 60480 for the 34" wide cars and Gauge Part 60481 for the 40" wide cars as shown in Fig. 8. Be sure to have the lower ends of the back diagonal braces (L-5, R-5) under the upper end lag screws. Shift the upper ends (R-1, L-1) of the diagonal braces in the slotted holes of the overhead frame and draw the bolts in the upper ends tight (1/2 x 1-1/4 bolts).

Screw the sill bracket "F" to the floor. (#10 x 1-1/4 F.H. Screws).

### LOWER FLOOR

Plumb down carefully from bracket "H" at the floor opening to locate the bottom floor spacing base bracket "G" (Fig. 5 or 7) for the bottom end of the rails R-7 and L-7. Screw this bracket "G" to the floor, being sure it is level and in line with the rails above. (#10 x 1-1/4 Screws).

The bottom floor rails should now be placed in the cups of the base bracket with the top ends down; then place the other ends of the rails against the center bracket and mark the rails the exact length to fit under the bottom ends of the upper rails. The bottom rails must fit snugly between the ends of the upper rails and the base bracket under the rails, as the load of the machinery and car is supported at the rear by the rails resting on the bottom floor. The HomeLIFT is sent out with the bottom floor guide rails several inches longer than required for the dimensions given in the order. This is done to allow for any slight error in measurements.

Saw off the rails where marked and then put these ends down when you put the guides in place. Thus any burrs or bending on the end of the rails due to cutting will not come at the joint.

The splice between the rails is made by the two screws in the lower end of the upper rail and two screws in the upper end of the bottom rail into the bracket with lock washers under the screw heads (5/16 x 5/8 R.H. Screws).

### MACHINERY

The next step is to install the hoisting unit. Place planks across the hatch opening with a box or ladder above. Two men can readily lift the unit in place.

The control box naturally must be at the front. By lifting one end of the saddle brackets over one of the side supports, the whole unit can be shifted to one side so as to get the other end of the brackets over the other support. Line up the ends of the saddle brackets to correspond with the holes in the support and bolt securely in place. (3/8 x 1-3/4 bolts.)

Now you are ready for the electrical connections.

### ELECTRICAL POWER

A special circuit should be run from the house meter through a separate fused switch. For 220 volts service the circuit should consist of three No. 14 wires and protected with not less than 15 ampere fuses. For 110 volts service, use two No. 12 wires and protect with 20 ampere fuses. Bring the power feed wires through the hole in the lower right hand rear of the controller box. For 220 volts power, connect one 220 volt lead to L-1, the other 220 volt lead to L-2 and the 110 volt or neutral to "N". For 110 volt power, connect one lead to L-1 and one to L-2 and put a jumper between L-1 and N.

### ELECTRICAL CONNECTIONS

Refer to wiring diagram 92173, Fig. 9 for the two stop lift and wiring diagram 92174, Fig. 10, where there are extra floors. By following the numbers and corresponding color markings, the connections are easily made.

Place the cables through the five holes in the controller box according to the letters -

A. Connect the three wires (Nos. 2, 3, and 4) from the top floor operating button to the corresponding numbers on the terminal block.

B. Likewise connect the three wires (Nos. 2, 3, and 4) from the bottom floor (and intermediate floor) operating button to the same terminals.

C. Connect the two wires (Nos. 1 and 8) from the top floor door interlock to the corresponding number on the control terminal block. For each intermediate floor the door interlock should be connected in series in this circuit.

D. Connect the flexible control cable containing seven wires (Nos. 2, 3, 4, 5, 6, 6A, and 8) and the light cable containing two wires (Nos. N and L-2) to the corresponding numbers on the terminal block. The cables should be looped at the back of the hoistway, allowing about a 12" drop in the loop when the car is at the lower floor, and fastened at the upper end with the clamps that are on the rear of the machine supporting frame.



## ELECTRICAL CIRCUIT TEST

Close the power service switch and then check that the final limit (on the left side of the controller box) is in the "ON" position so that the limit switch is closed. As a check on the power connections, manually close the Up or Down direction contactor along with the potential switch and note if the motor and brake operate.

Test the control circuit by closing the car and landing doors so that contact is made on the car door switch and landing door interlock and then pushing the Up car or landing operation button. This should operate the machine in the Up direction.

Test the Stop button and the door contact switches to see that the unit will stop when any of these are open. When you are satisfied that everything is O.K. you are then ready to install the hoisting chains.

**CAUTION** - Turn off the power before going further so there can be no accidental starting of the machine.

Wiring diagrams 92172, 92173, and 92174 on pages 8, 9, and 10, apply to new production with serial numbers following 4500. Wiring diagrams covering production prior to Serial No. 4500 are to be found in HomeLIFT form 505. These will be helpful in servicing older equipment.

## COUNTERWEIGHT (40 SERIES)

Before the lower car rails and car are in position, assemble the counterweight with wood guide shoes removed and hoist into position with rope falls or chain hoist. Then mount the guide shoes and block the counterweight up in readiness for the chain after the car is installed.

## DISASSEMBLING AND ASSEMBLING THE CAR

In some cases it may be necessary to disassemble the car to get it through a doorway or into an enclosed hatchway. Study Figs. 12 and 13 carefully. Fig. 12 is for the steel frame work of the car and Fig. 13 for the paneling. With the car standing upright, disassemble the car as follows:

1. Remove the rail covers. These are held to the stiles with eight 10-24 x 5/8" Oval Hd. Machine Screws.
2. Remove the safety dogs from their shafts by driving out the taper pins holding them.
3. Remove the front access panel. It is held to the corner angles by two "bullet" catches, and by two pins to the car top.

4. Remove the two screws holding the center guide pins to the center door posts. Allow these pins to slide into the door posts. Remove door pivot bushing from above car top (in corners), loosen spacers on top pivot (8-32 Allen Hd. set screw). The doors may then be lifted from the bottom pivots and door tracks. See Fig. 18.
5. Remove the cove moulding from the platform. Remove the rear corner molding from the two rear corners.
6. Lift out the inner platform and rug.
7. Remove the screws from the corner angles and the stiles. These hold the side panels in place. The side panels are removed from the inside.
8. Remove the screws from the stiles. These hold the rear panel in place. Remove the rear panel from the inside.

The car frame is now ready for disassembly. It is most easily done by laying down the car with its front on the floor. Remember to protect the finish of the car frame during this operation. Disassemble as follows:

1. Remove the front corner angles. They are held to the car top and platform frame by cap screws and hex nuts (5/16 x 5/8) at each end.
2. Disconnect the diaphragm switch connection to safety plank by removing screw and spring from switch adjustment hole. (Small hole in safety plank under stile.) Do not lose spring. See Fig. 19.
3. Remove the two cap screws (3/8 x 1/2) from the bottom of each stile and one cap screw (5/16 x 5/8) from the bottom of each stile. Remove the platform frame and safety platform from the stiles. Notice that the platform rests on top of the end plates of the stiles and front corner angles. This is very important to remember when the car is reassembled.
4. Disconnect the seven conductor traveling cable running to the control station from the car top junction box. Disconnect the two wire cable running to the safety diaphragm switches from the junction box. (Right hand stile only.)
5. Remove the two cap screws (1/2 x 3-1/4) from each of the stiles and the cap screw (5/16 x 5/8) from the top of each stile corner. Remove lower cap screw (3/8-16 x 3-3/4) of upper carriage. Remove the two stiles.

The car is now completely disassembled and can be moved into place for installation. There are two ways to assemble the car; either in its position in the hatchway or lying on its face as it was disassembled. Where the car has no bottom enclosure, it is preferable to assemble the car lying down. Where there is a bottom enclosure, the car will have to be assembled in the hatch.

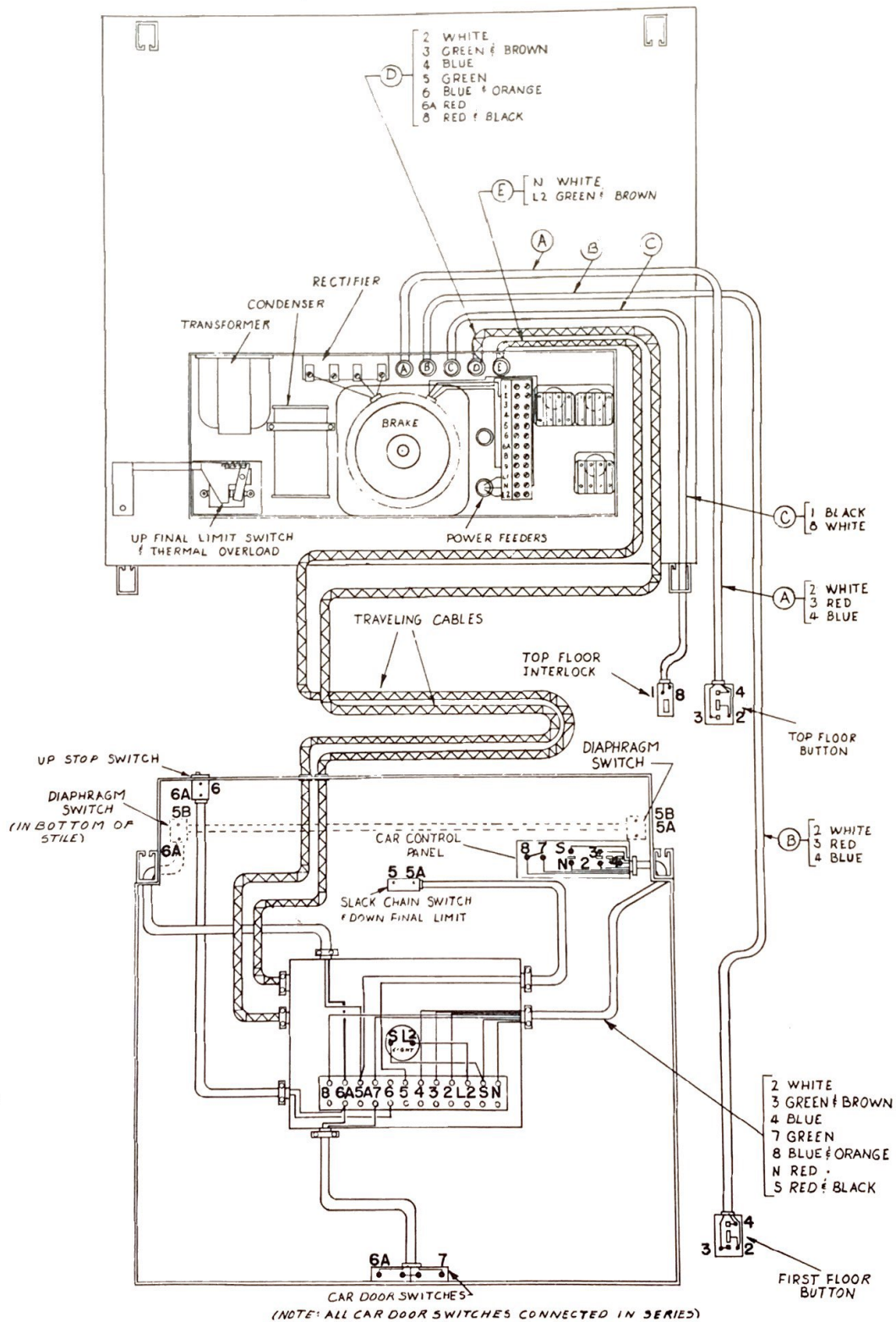


FIG. 9

TWO STOP WIRING DIAGRAM 92173



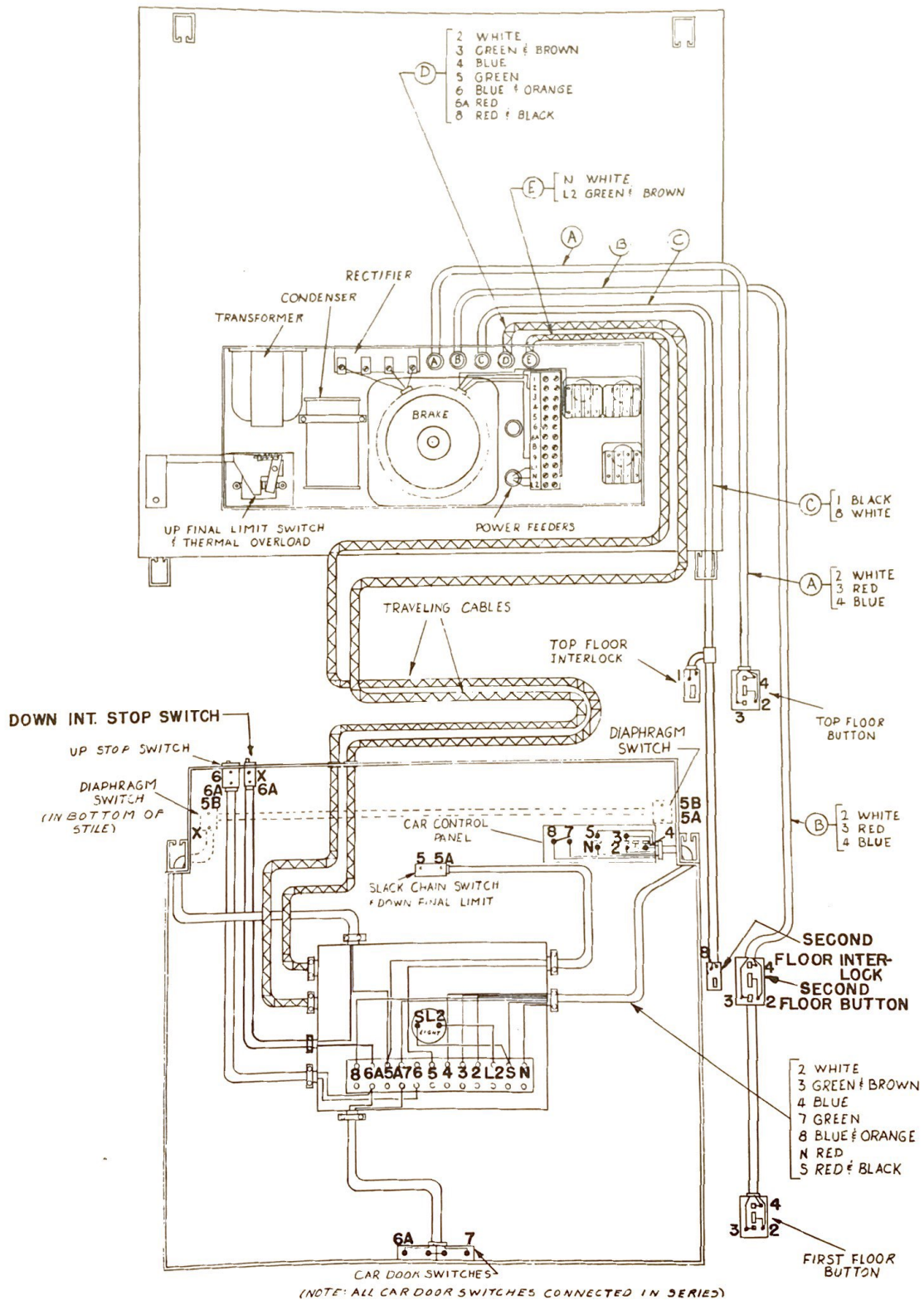


FIG. 10

THREE OR FOUR STOP WIRING DIAGRAM 92174 FOR SIMPLOMATIC OPERATION





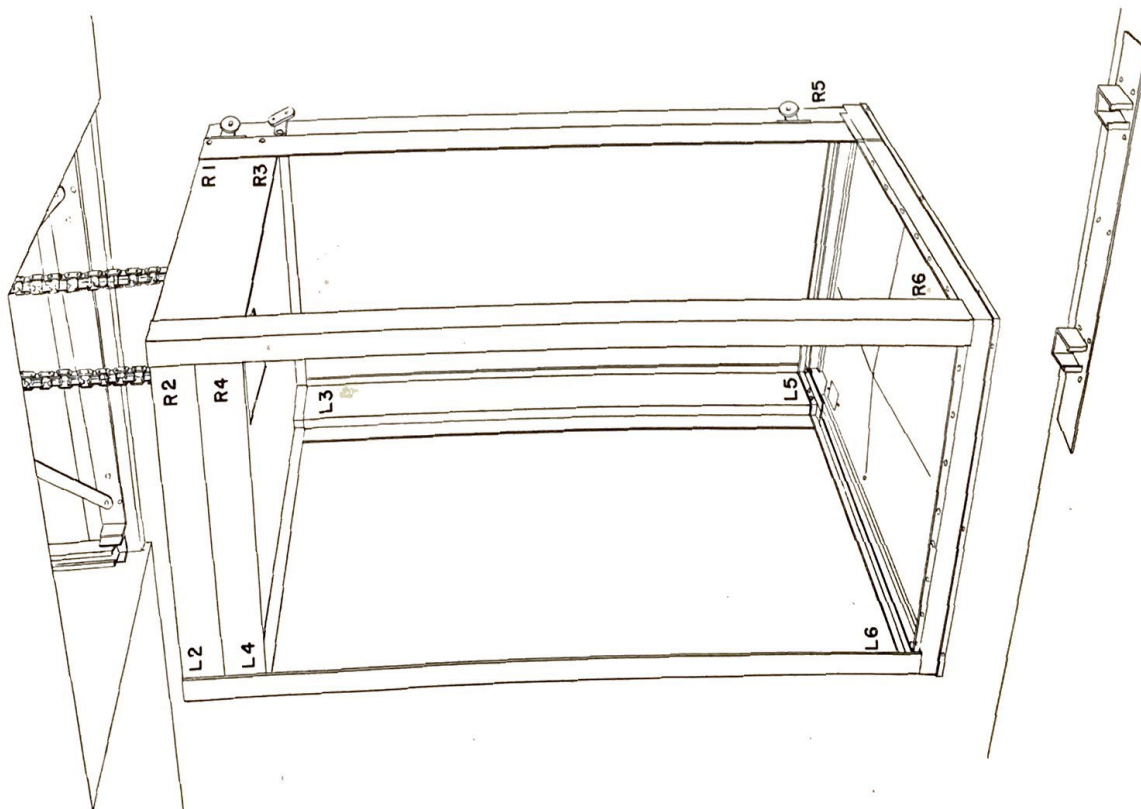


FIG. 12  
CAR FRAMEWORK

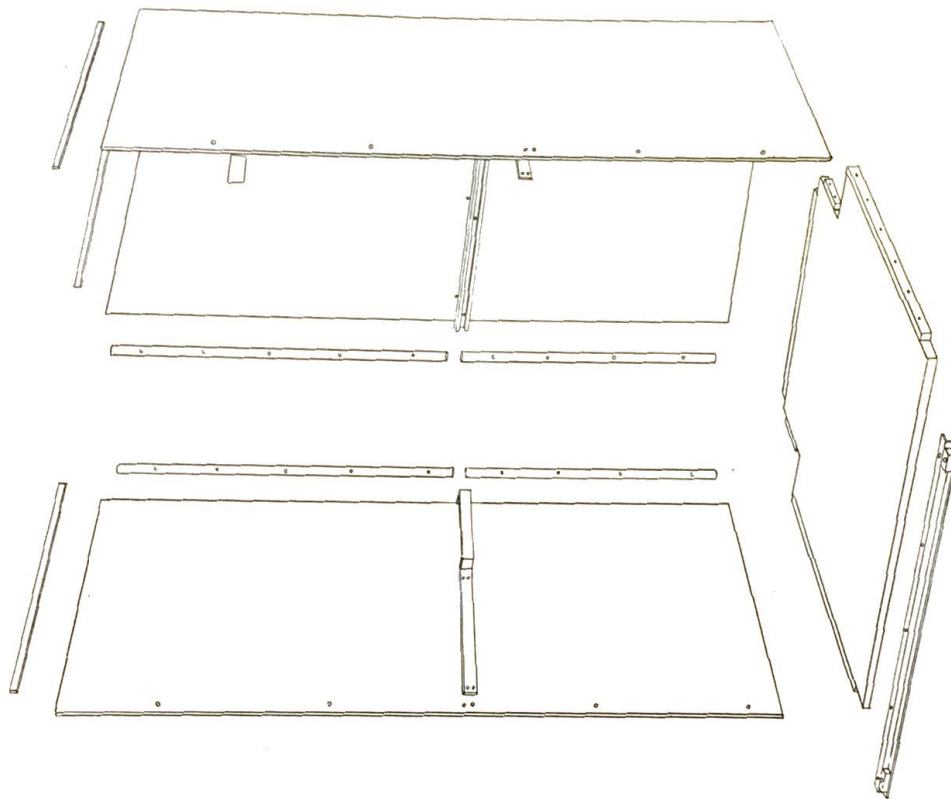


FIG. 13  
CAR WOODWORK

## HOMELIFT

The assembly procedure is exactly the same in both cases except the car top must be supported in place in the hatchway. The car is assembled in the following manner:

1. The stiles are attached.
2. The bottom frame and safety platform are connected to the stile. Frame must be attached so that it rests on top of end plates of stiles.
3. Front corner angles are then attached. (At this point stand the car upright.)
4. Side and rear panels are installed and screwed into place. Make sure panels clips ("H" section pieces) are in place between frame and side.
5. Reinstall the safety diaphragm switch connection to safety plank. Remove 4" x 4" cover plates on plank bottom. Put 10-24 x 5/8 R.H. machine screw through adjusting holes and turn on to switch connection with spring between connection and safety plank. Turning this screw changes tension on switch. See Fig. 19.
6. Insert wood platform and rug into frame.
7. Install rear corner moulding and corner moulding around floor.
8. Car doors may now be installed. This is most easily done by inserting door top pivot into cutout in ceiling corners and drop door bottom pivot in place in door track. Install top door pivot bushing from above car top. (These may be moved for better door fitting and operation.) Loosen adjust nut on bottom pivot (8-32 Allen Hd. set screw) and turn nut to raise or lower door. Tighten nut. Raise top pivot spacer and tighten. See Fig. 18. Now the center guide post may be installed.
9. Reconnect the control cables from the control station and the safety diaphragm switches into the car junction box.
10. Reinstall the front access panel, the safety dogs and rail covers. Before the car is put in place under the rails, check the spacing of the roller guides and safety to be sure the spacing is correct. Use gauge #60480 for the 34" wide cars and gauge #60481 for 40" wide cars as shown in Fig. 15.

The car is now completely assembled. Place it approximately in place at the bottom floor and slip the bottom floor rails over the top roller guides, safety and bottom roller guides. Insert the rails into the base cups and bolt the upper ends of the rails into the bracket "H" with two 5/16 x 5/8 R.H. machine screws and lock washers.

**NOTE:** On 40 Series models, a down direction switch is supplied instead of the safety diaphragm to

stop the car at the bottom floor. A cam on the rail operates this switch in the same manner as the up direction switch is operated at the top floor.

### HOISTING CHAINS (20 SERIES)

Straighten the hoisting chains carefully, starting at the evener link so that there will be no twist in either length and start the free ends over the sprocket teeth from the front, one on each side of the winding unit. Be sure to start the ends even and on corresponding sprocket teeth as the chains are exactly the same length.

Thread the chains over the sprockets by turning the motor shaft by means of the hand crank which comes with the machine and is mounted inside the top floor transom frame.

Each chain goes over the sprocket from the front, down under the first wood roller, up over the rear wood roller and drops down the hatch to hang in a loop as shown in Figs. 2 and 5.

Now straighten the chains down to the cab and place the evener link into the female mating evener on the crosshead by removing and re-inserting the draw pin and cotter pin.

Start and stop the machine by easy stages or crank the machine until you bring the chains under sufficient tension to lift the car. Note that the two chains have the same tension.

Hook the opposite free ends of the chain to the overhead supporting frame with the flat strap hooks **LEAVING THE HOOKS OPEN** so that the chains can pull loose in case of emergency. With the car at the bottom there should be about 18" to 24" length of loop in the free end of the chains.

The car can now be operated in the "UP" run.

### HOISTING CHAINS (40 SERIES)

The chains are run on engine sprockets in same manner as on the 20 series. They run around the idler as shown in Fig. 7, and down to the counterweight. In cutting, make them of such a length that the counterweight is 5 inches from its buffer when the car is level with the upper landing.

### TESTING (20 SERIES)

When the car has been raised a few feet, remove the shipping screws which hold the bottom sensitive plate tight against the main platform.

It is best now to see that the car will run down in order to learn that the sensitive plate has closed the down contact switches.



With the top floor landing door in place and properly latched the HomeLIFT should now be complete for operation.

#### TESTING (40 SERIES)

Run the car to both terminals checking to see that stops are made level with the landings. Run the car onto the buffer springs to check that the counterweight has proper overhead clearance. Also land the counterweight on the buffer to see that the car has sufficient overhead clearance. To do this the car must be run manually by pushing in the directional contactors.

#### IMPORTANT

Run the car up and down several trips with the hand on final limit arm and watch carefully to see that the chains travel smoothly and straight and that the flexible control cable to the car has no twists or kinks and no tendency to catch.

When the HomeLIFT has been thoroughly tested the top floor frame should be carefully checked with a plumb line to see that it is plumb and square all ways. Then the wall board side enclosures can be nailed to the nailing strips.

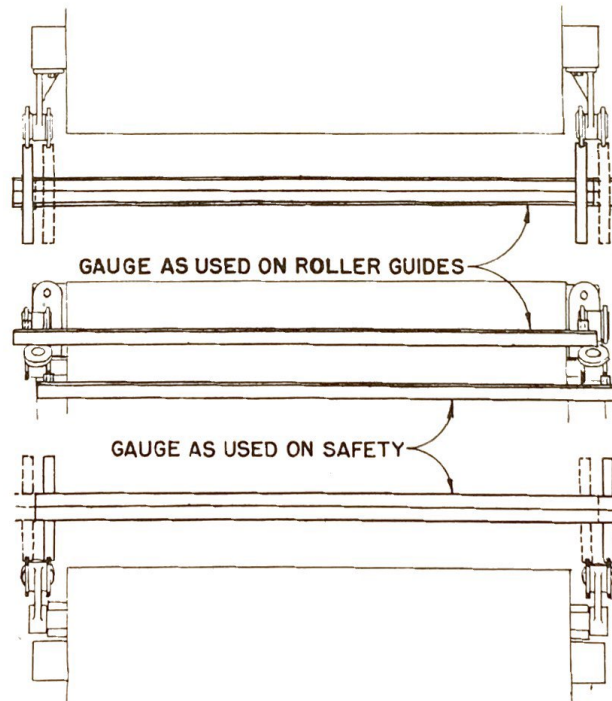
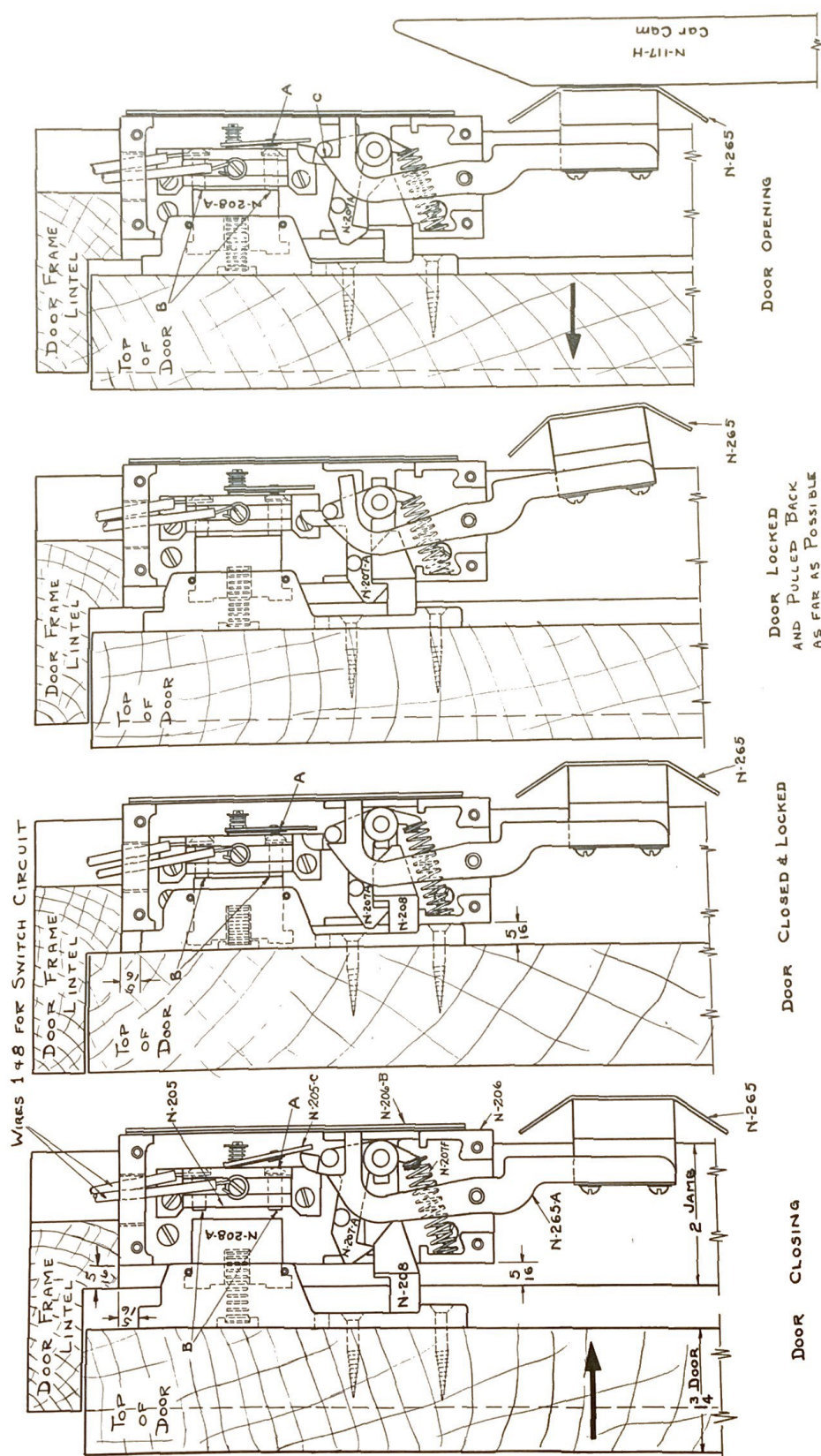


FIG. 15

USE OF HomeLIFT RAIL GAGE OBTAINABLE  
FROM FACTORY AT NOMINAL COST



With car cam N-117-H adjacent the release arm N-265, the keeper in moving forward rocks about the point "C" and releases door as it is pulled open. The lifting of N-207-A opens contact at "A" until bridge N-208-A moves away at "B".

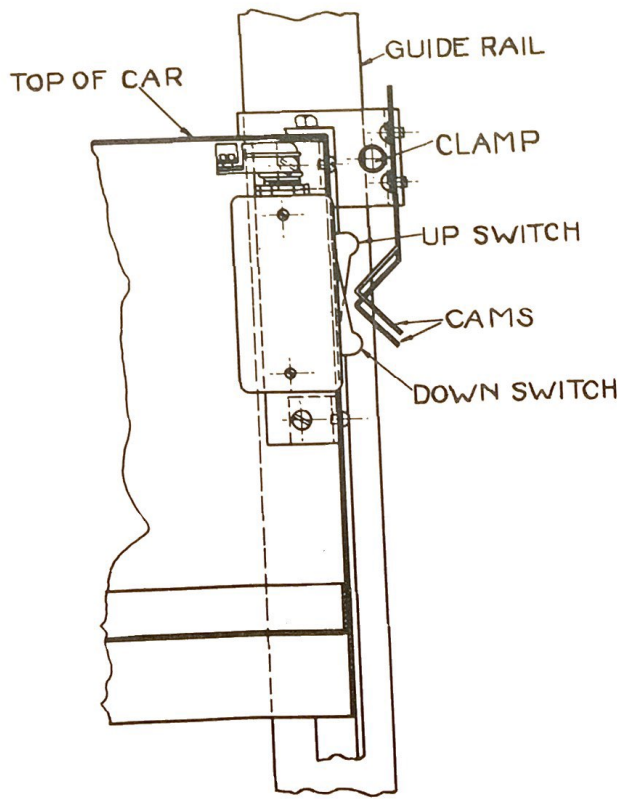
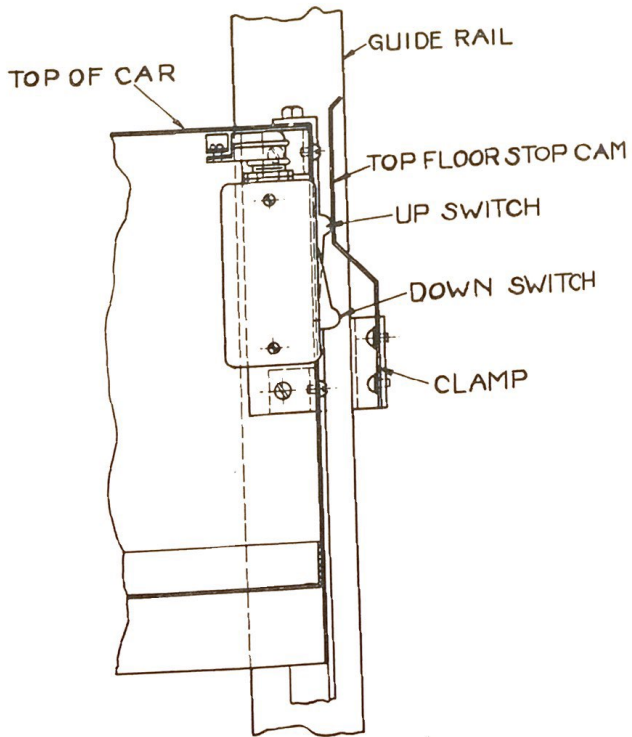
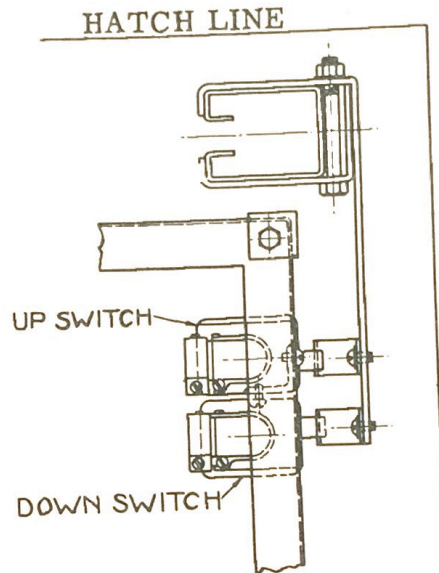
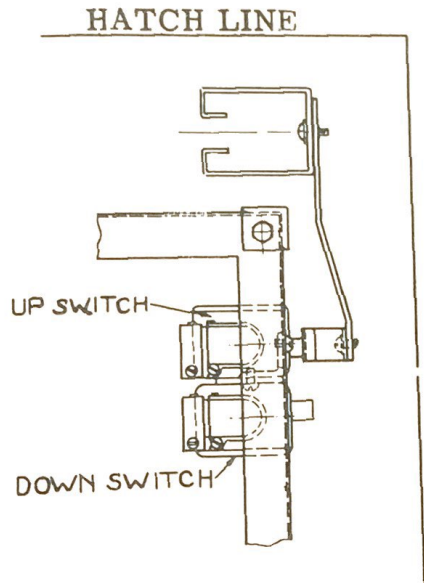
With car away from floor and release arm N-265 free to swing an attempt to pull door open pulls keeper N-207-A forward, but it does not tilt up and release.

When door is closed, latch N-208 raises keeper N-207-A before bridge N-208-A has made contact on N-205. As long as N-207-A is raised it holds open contact at "A" preventing car from running. Not until keeper has dropped into latch hook will both contact at "A" and "B" be made. Door is then locked and car may run.

FIG. 16

ENCLOSURE DOOR INTERLOCK





TOP FLOOR STOP SWITCHES

FIG. 17

INTERMEDIATE STOP SWITCHES

# HOMELIFT

## FINAL

Re-check the top floor frame work with a plumb line to see that it is perfectly true and square. This is important in order to have the car and enclosure doors operate and latch smoothly. The markings used for assembly of structural parts may be removed with water.

## MISCELLANEOUS

When the HomeLIFT is shipped without the top floor hoistway enclosure, it is very important to fit the door furnished by the owner carefully to the door frame which is furnished with the HomeLIFT. This also applies in the case of an intermediate floor when a standard frame and support is furnished with the HomeLIFT. The reason the HomeLIFT frame should be used is because it comes equipped with the lock and door contact switch.

When the owner supplies his own landing doors, they should be installed so that the inside of the door is 2" from the hatch line, as shown on the layout. If this dimension is more than 2", a landing door interlock linkage extension must be used. The interlock assembly should be installed on the door and frame exactly as shown on the interlock mounting details in Fig. 14. The interlock cam is mounted on the corresponding corner angle of the steel car frame. Also at the top floor a transom should be installed above the door which can be easily removed or swung open to give access to the machine.

## BRAKE ADJUSTMENT

The brake should need adjustment only after long usage. Should the car not stop promptly at the floors, the electric brake probably needs cleaning and adjusting. The brake is mounted on the end of the motor shaft and is accessible from the controller box.

To adjust the brake, remove the lock screws at "S" (See Fig. 1) from the knurled brake adjusting nut located on the motor shaft. Then remove the nut by turning to the left. The brake disc can then be pulled off. Clean the brake lining and metal brakedisc thoroughly with high test gasoline, Carbona or Energine.

In reassembling, turn the nut clockwise as far as possible and then turn back to the left one-third of a turn or two holes (not more) and replace the lock screws.

It is recommended that a HomeLIFT service man make this brake adjustment.

## TO CHANGE THE SWING ON ENCLOSURE DOORS

In a few installations it may be necessary to change the door from a right hand to a left hand assembly, or vice versa. This can be done in a matter of minutes due to the flexible design of the HomeLIFT door frame assembly.

The hinges and the latch are located symmetrically about the center line making it possible to turn the door end-for-end and thereby reverse the hand of the door.

The interlock latch must be mounted on opposite end of the door. This can best be located after door is hung by inserting into interlock and marking hole location on door. Sufficient wiring is furnished for the interlock so the necessary wire length can be withdrawn from the door frame when the interlock is moved to the opposite side of the door.

The interlock is symmetrical about the center line of the case. To change the hand of the interlock the cover is removed and all parts lifted out and turned over. The small side cover is then removed from the one side and installed on the other side.

## INTERMEDIATE STOP

Where the HomeLIFT travels more than one floor, cams for operating the intermediate stop are mounted on the guide rail. The intermediate switches are mounted on the rear of the car canopy.

To adjust the intermediate stop, refer to Fig. 17 and proceed as follows: When the car is level with the floor the high point of the cam for the up stop switch should be about one inch below the high point of the up stop switch, and the high point of the cam for the down stop switch should be about one inch above the high point of the down stop switch.

The bracket carrying both cams may be adjusted up and down on the guide rail and each cam is individually adjustable on the bracket. After the cams have roughly been set as outlined above, it is necessary to run the car to the intermediate floor and let it stop naturally. If it stops short of the floor move the cam for that direction in the direction of travel and if it runs past the floor move the cam against the direction of travel.

Be sure to check the guide rail spacing at each intermediate floor bracket using the Gauge as described for checking the guide rail spacing at the top floor header bracket.

## SINGLE AUTOMATIC OPERATION

Single Automatic Operation is available for both models. Special diagrams and instructions are furnished.

## ATTIC HOISTING UNIT MOUNTING

Where necessary the hoisting unit may be mounted in the attic. In such cases special prints and instructions are furnished.

## SOUND REDUCING SHEETS

In certain installations the ceiling surface at the top floor reflects machine noises to such an extent as to become objectionable. In such cases sound absorbing panels may be installed across the machine support assembly. It is merely necessary to cut these to size and lay them across the top of the machine support.

## SHELF

Shelf kits may be purchased separately. Material and complete instructions are included with the kit.



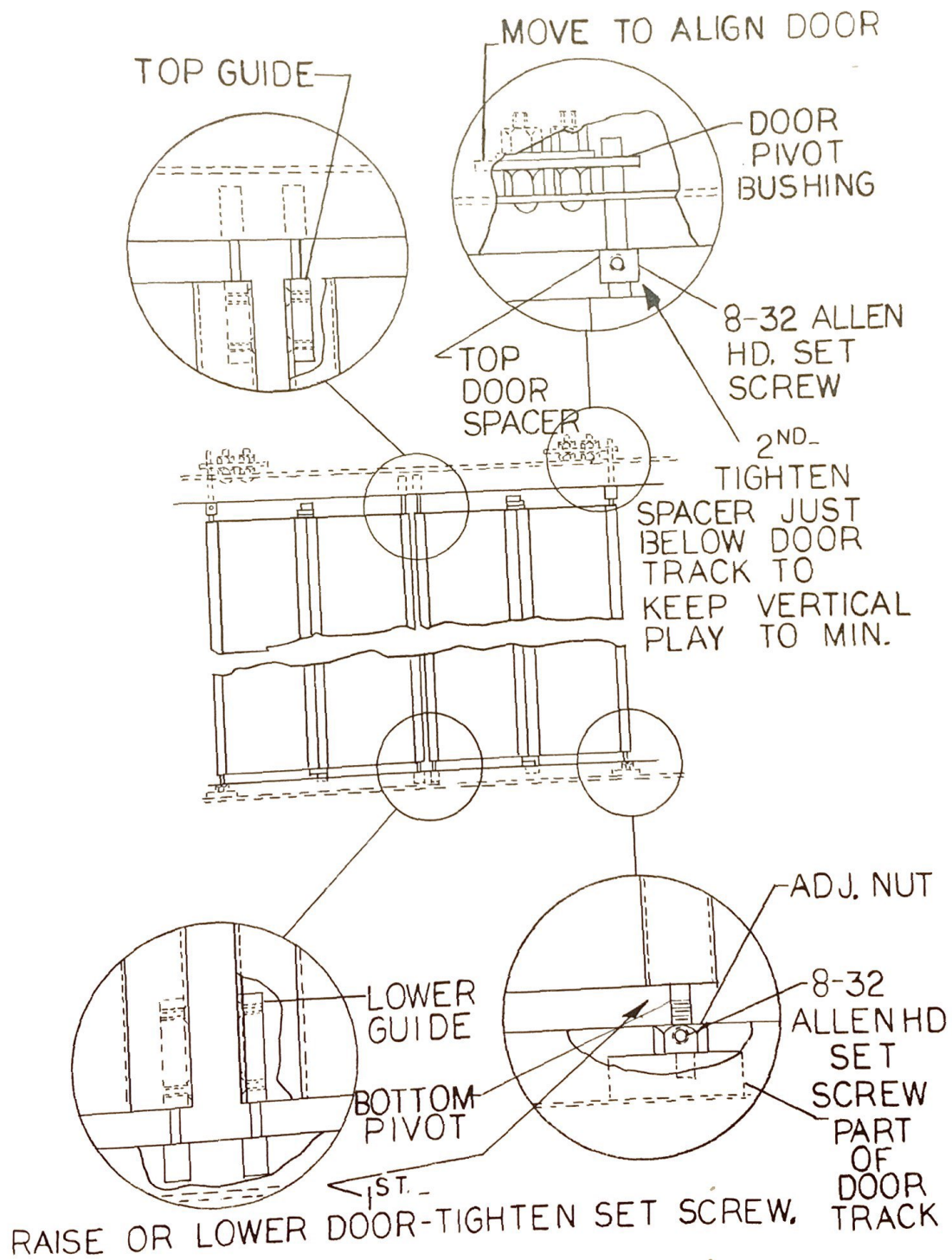


FIG. 18

TYPICAL DOOR ELEVATION

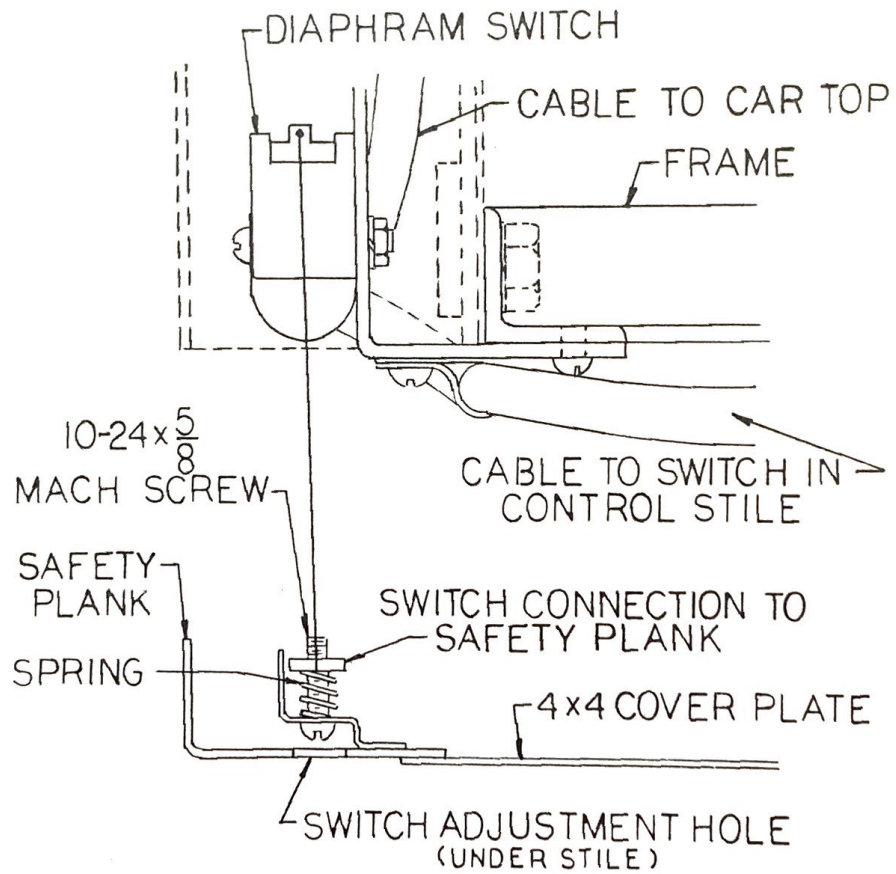


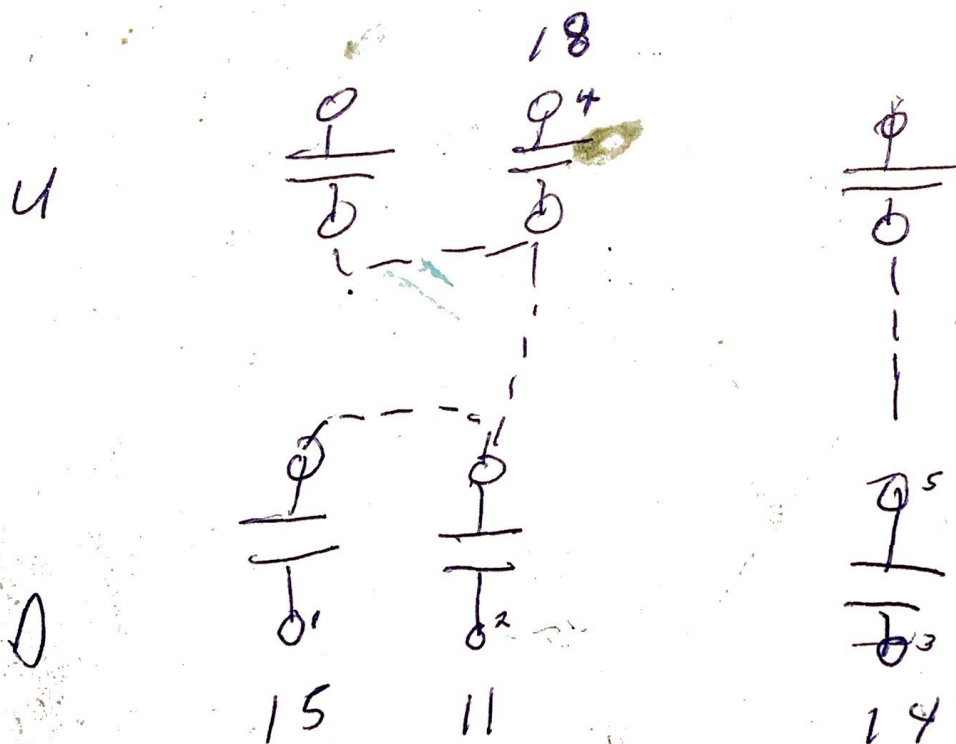
FIG. 19

DIAPHRAM DETAIL





12 & 13 - TIED together  
 16 & 17 TIED together



Motor leads 11, 14, 15, 18